

Amendment to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

Claim 1 (currently amended): A method for determining vulnerable plaque in a cardiovascular lumen, comprising:
inserting a guide member into the cardiovascular lumen;
sensing temperature from a first position along the inserted guide member;
sensing temperature from a second position along the inserted guide member, the second position proximal the first position; ~~and~~
determining the vulnerable plaque based on the sensed temperature from the first position and the sensed temperature from the second position; and
cooling bodily fluid flowing in the cardiovascular lumen to increase the change between the first position temperature and the second position temperature.

Claim 2 (original): The method of claim 1 wherein the first and second temperature-sensing positions comprise positions of temperature sensors located on the guide member.

Claim 3 (original): The method of claim 1 further comprising:
identifying placement of the temperature-sensing positions; and
determining a location of the vulnerable plaque.

Claim 4 (original): The method of claim 3 wherein the temperature-sensing positions are identified with one of an indexed guide member, a radiopaque marker on the guide member, or a radio-frequency coil on the guide member.

Claim 5 (original): The method of claim 1 further comprising:
measuring flow of fluid within the cardiovascular lumen proximate the temperature-sensing positions.

Claim 6 (original): The method of claim 5 wherein the flow measurement uses a flow sensor located on the guide member.

Claim 7 (original): The method of claim 5 further comprising:
compensating the sensed temperature from the first position with the flow measurement;
compensating the sensed temperature from the second position with the flow measurement; and
determining the vulnerable plaque based on the difference between the compensated sensed temperatures.

Claim 8 (cancel).

Claim 9 (currently amended): The method of claim 1 & wherein cooling bodily fluid comprises applying a cold compress on a neck, injecting a cold saline solution into the cardiovascular lumen, or breathing cooled air.

Claim 10 (original): The method of claim 1 further comprising:
treating the vulnerable plaque.

Claim 11 (currently amended): A system for determining vulnerable plaque in a cardiovascular lumen, comprising:
means for inserting a guide member into the cardiovascular lumen;
means for sensing temperature from a first position along the inserted guide member;
means for sensing temperature from a second position along the inserted guide member, the second position proximal the first position; and
means for determining the vulnerable plaque based on the sensed temperature from the first position and the sensed temperature from the second position;

means for compensating the sensed temperature from the first position
with a flow measurement;

means for compensating the sensed temperature from the second position
with a flow measurement;

means for determining the vulnerable plaque based on the difference
between the compensated sensed temperatures; and

means for cooling bodily fluid flowing in the cardiovascular lumen to
increase the change between the first position temperature and the second position
temperature.

Claim 12 (original): The system of claim 11 further comprising:
means for identifying placement of the temperature-sensing positions; and
means for determining a location of the vulnerable plaque.

Claim 13 (original): The system of claim 11 further comprising:
means for measuring flow of fluid within the cardiovascular lumen
proximate the temperature-sensing positions.

Claims 14-15 (canceled).

Claim 16 (currently amended): The system of claim 11 ~~14~~ further
comprising:
means for treating the vulnerable plaque.

Claims 17-20 (canceled).